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09/751,684	12/29/2000	Steven M. Blumenau	E0295/7139 RAS	9139

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EXAMINER

MCLEAN MAYO, KIMBERLY N

ART UNIT PAPER NUMBER

2187

DATE MAILED: 10/01/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,684

Applicant(s)

BLUMENAU ET AL.

Examiner

Kimberly N. McLean-Mayo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

DETAILED ACTION

1. The enclosed detailed action is in response to the Information Disclosure Statement submitted July 27, 2001 and the Application submitted on December 29, 2000.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-13, 15-21, 23-41, 43-57 and 60-66 are rejected under 35 U.S.C. 102(e) as being anticipated by O'Hare et al. (USPN: 6,484,173).

Regarding claims 1, 6-7 and 12, O'Hare discloses in response to a non-media access request (a system call) by a first of the plurality of devices to a logical device at the shared resource for which the first device has no data access privileges (wherein data access privileges refers to read or write access) (C 10, L 13-14; this condition occurs when access control of the system includes read and write operations and when read and write operation access types are not allowed for the

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first device to the logical device at the shared resource; each requesting device is allowed access to certain regions of the shared resource for certain access types, refer to C 10 – C 14; Figure 5 and Figure 6), determining whether the first device is authorized to have non-media access to the logical device and authorizing the non-media access request when it is determined that the first device is authorized to have non-media access to the logical device (Figure 6, References 202, 216, 220, 224, 226, 228, 230 and 214; C 12, L 57-65; C 13, entire; C 14, L 1-21).

Regarding claims 2-3 and 16, O'Hare discloses denying the non-media access request when it is determined that the first device is not authorized to have non-media access to the logical device (C 13, L 57-61; this effectively ignores the request since the request is never processed or executed).

Regarding claims 4 and 17-18, O'Hare discloses forwarding the non-media access request to the physical device corresponding to the logical device (Figure 1, References 34-36; Figure 3; Reference 36; requests are forwarded to the physical device via ports 34-36; C 7, L 31-39).

Regarding claims 5, 24 and 32, O'Hare discloses system calls, which control configuration and operation of the storage system and thus such system intrinsically includes any requests which is related to configuring or operating the storage system and that includes an availability request (C 6, L 30-32).

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Regarding claims 8 and 10, O'Hare discloses the elements of claim 1 performed by a filter (security module; C 14, L 22-32) that controls access to a plurality of logical devices (Figure 1, References 24-26) at the shared resource (Figure 1, Reference 22) and further comprising maintaining in a data structure (matrix, Reference 100 in Figure 5) accessible to the filter configuration information corresponding to the first device wherein the configuration information includes first configuration information identifying each of the plurality of logical devices (W, X, Y, Z) to which data access (access indicated by one of B, C and M which represents data access level) by the first device (one of requestors Q, R, S, T and V) is authorized and whether the non-media access (access indicated by one of B, C and M which represents the non-media access level) is authorized to each of the plurality of logical devices for which the configuration information identifies that no data access is authorized for the first device (C 10, L 21-67; C 11, L 1-32).

Regarding claim 9, O'Hare discloses examining the configuration information corresponding to the first device to determine whether the first device is authorized to have non-media access to the logical device (C 13, L 54-61).

Regarding claims 11 and 23, O'Hare discloses determining whether an access request by the first device is one of a data access request and a non-media access request (C 13, L 54-61).

Regarding claims 13 and 21, O'Hare discloses the storage system performing the operations in claim 12 (Figure 3, Reference 22, 60; C 14, L 22-32).

Regarding claims 15, 19-20 and 25-27, O'Hare discloses maintaining in a data structure (matrix, Reference 100 in Figure 5) accessible to the filter configuration information corresponding to the first device wherein the configuration information includes first configuration information identifying each of the plurality of logical devices (W, X, Y, Z) to which data access (access indicated by one of B, C and M which represents data access level) by the first device (one of requestors Q, R, S, T and V) is authorized (C 10, L 21-67; C 11, L 1-32); in response to a non-media access request (a system call) by a first of the plurality of devices to a logical device at the shared resource for which the first device has no data access privileges (wherein data access privileges refers to read or write access) (C 10, L 13-14; this condition occurs when access control of the system includes read and write operations and when read and write operation access types are not allowed for the first device to the logical device at the shared resource; each requesting device is allowed access to certain regions of the shared resource for certain access types, refer to C 10 – C 14; Figure 5 and Figure 6), determining whether the first device is authorized to have non-media access to the logical device and authorizing the non-media access request when it is determined that the first device is authorized to have non-media access to the logical device (Figure 6, References 202, 216, 220, 224, 226, 228, 230 and 214; C 12, L 57-65; C 13, entire; C 14, L 1-21).

Regarding claims 28, 33, 38-41, 48, 52 and 57, O'Hare an input to be coupled to the network, wherein the network couples the plurality of devices to the shared resource (Figure 3, Reference 62; C 4, L 18-30); and at least one filter (Figure 3, Reference 64; C 14, L 22-32) coupled to the

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input (via Reference 62 in Figure 3) that is responsive to the a non-media access request by a first of the plurality of devices to a logical device at a shared resource for which the first device has no data access privileges (wherein data access privileges refers to read or write access) (C 10, L 13-14; this condition occurs when access control of the system includes read and write operations and when read and write operation access types are not allowed for the first device to the logical device at the shared resource; each requesting device is allowed access to certain regions of the shared resource for certain access types, refer to C 10 – C 14; Figure 5 and Figure 6), to determine whether the first device is authorized to have non-media access to the logical device and to authorize the non-media access request when it is determined that the first device is authorized to have non-media access to the logical device (Figure 6, References 202, 216, 220, 224, 226, 228, 230 and 214; C 12, L 57-65; C 13, entire; C 14, L 1-21).

Regarding claim 29, 31, 49 and 51, O'Hare discloses the filter denying the non-media access request when it is determined that the first device is not authorized to have non-media access to the logical device (C 13, L 57-61; this effectively ignores the request since the request is never processed or executed).

Regarding claims 30 and 50, O'Hare discloses a plurality of storage devices (C 5, L 64-67) coupled to the at least one filter, and wherein when it is determined that the first device is authorized to have non-media access to the logical device, the at least one filter forwards the non-media access request to a storage device corresponding to the logical device (C 7, L 48-67; C 8, L 1-24).

Regarding claims 34, 36, 48 and 53-54, O'Hare discloses data structure (matrix, Reference 100 in Figure 5), accessible to the at least one filter, that stores configuration information corresponding to the first device that includes first configuration information identifying each of a plurality of logical devices (W, X, Y, Z) at the shared resource to which data access (access indicated by one of B, C and M which represents data access level) by the first device (one of requestors Q, R, S, T and V) is authorized and second configuration information identifying whether non-media access (access indicated by one of B, C and M which represents the non-media access level) is authorized to each of the plurality of logical devices for which the first configuration information identifies that no data access is authorized for the first device (C 10, L 21-67; C 11, L 1-32).

Regarding claims 35 and 55, O'Hare disclose the at least one filter examining the second configuration information corresponding to the first device to determine whether the first device is authorized to have non-media access to the logical device (C 13, L 54-61).

Regarding claims 37 and 56, O'Hare discloses examining the access request to determine whether the access request is one of a data access request and a non-media access request (C 13, L 54-61 – determining access request type).

Regarding claims 28, 33, 38-41, 48, 52 and 57, O'Hare an input to be coupled to the network, wherein the network couples the plurality of devices to the shared resource (Figure 3, Reference

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62; C 4, L 18-30); and at least one filter (Figure 3, Reference 64; C 14, L 22-32) coupled to the input (via Reference 62 in Figure 3) that is responsive to the a non-media access request by a first of the plurality of devices to a logical device at a shared resource for which the first device has no data access privileges (wherein data access privileges refers to read or write access) (C 10, L 13-14; this condition occurs when access control of the system includes read and write operations and when read and write operation access types are not allowed for the first device to the logical device at the shared resource; each requesting device is allowed access to certain regions of the shared resource for certain access types, refer to C 10 – C 14; Figure 5 and Figure 6), to determine whether the first device is authorized to have non-media access to the logical device and to authorize the non-media access request when it is determined that the first device is authorized to have non-media access to the logical device (Figure 6, References 202, 216, 220, 224, 226, 228, 230 and 214; C 12, L 57-65; C 13, entire; C 14, L 1-21).

Regarding claim 29, 31, 49 and 51, O'Hare discloses the filter denying the non-media access request when it is determined that the first device is not authorized to have non-media access to the logical device (C 13, L 57-61; this effectively ignores the request since the request is never processed or executed).

Regarding claims 30 and 50, O'Hare discloses a plurality of storage devices (C 5, L 64-67) coupled to the at least one filter, and wherein when it is determined that the first device is authorized to have non-media access to the logical device, the at least one filter forwards the

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non-media access request to a storage device corresponding to the logical device (C 7, L 48-67; C 8, L 1-24).

Regarding claims 34, 36, 48 and 53-54, O'Hare discloses data structure (matrix, Reference 100 in Figure 5), accessible to the at least one filter, that stores configuration information corresponding to the first device that includes first configuration information identifying each of a plurality of logical devices (W, X, Y, Z) at the shared resource to which data access (access indicated by one of B, C and M which represents data access level) by the first device (one of requestors Q, R, S, T and V) is authorized and second configuration information identifying whether non-media access (access indicated by one of B, C and M which represents the non-media access level) is authorized to each of the plurality of logical devices for which the first configuration information identifies that no data access is authorized for the first device (C 10, L 21-67; C 11, L 1-32).

Regarding claims 35 and 55, O'Hare discloses the at least one filter examining the second configuration information corresponding to the first device to determine whether the first device is authorized to have non-media access to the logical device (C 13, L 54-61).

Regarding claims 37 and 56, O'Hare discloses examining the access request to determine whether the access request is one of a data access request and a non-media access request (C 13, L 54-61 – determining access request type).

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Regarding claims 43-47, O'Hare discloses a computer readable medium (C 18, L 36-60) comprising a data structure relating to access management by a plurality of network devices to data stored on a plurality of logical devices of a shared resource, the data structure including a plurality of records each corresponding to one of the plurality of network devices, a first record of the plurality of records corresponding to a first of the plurality of network devices and including configuration information identifying each logical device of the plurality of logical devices to which data access by the first network device is authorized to have non-media access to a first logical device of the plurality of logical devices when the configuration information corresponding to the first network device identifies that no data access to the first logical device from the first network device is authorized (Figure 5, C 10, L 28-67; C 11, entire; C 12, L 1-33).

Regarding claims 60-66, O'Hare discloses a plurality of storage devices that store a plurality of logical volumes of data (C 5, L 64-67); a data structure to store configuration information identifying whether a first network device of a plurality of network devices [C 4, L 18-30 – when the devices are coupled to the storage via a network, the devices are network devices] that are coupled to the storage system is authorized to access data on a first logical volume of the plurality of logical volumes (Figure 5, Reference 100; C 21-67 ; C 11, L 1-32); and a filter, responsive to the configuration information stored in the data structure, to selectively forward non-media access requests from the first network device to the first logical volume when the configuration information identifies that no data access to the first logical volume from the first network device is authorized (Figure 3, Reference 64; C 14, L 22-32; Figure 6; C 12, L 57-67; C 13, entire; C 14, L 1-21).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 14, 22 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Hare et al. (USPN: 6,484,173).

Regarding claims 14 and 22, O'Hare discloses the limitations cited above in claims 12 and 15, however, O'Hare does not disclose the operations of claim 12 performed outside of the storage system. In O'Hare's system the operations are performed within the storage system. It is well known in the art to remove functionality from one device to another to simplify the design thereof or to free the device from performing such functions so that the device may perform other functions [efficiency]. This feature would be desirable in the system of O'Hare if one wanted to simplify the design of the storage system or to operate the storage system more efficiently and thus it would have been obvious to one of ordinary skill in the art to modify O'Hare's system to perform the operations external to the data storage system for the above reasons.

Regarding claim 59, O'Hare discloses the at least one filter and the input inside the data storage system (Figure 3, Reference 63 and 62 respectively). However, O'Hare does not disclose the data structure disposed outside of the storage system. Systems are implemented according to

design goals and thus elements are located in a system to meet the design goals. Accordingly, it is a matter of design choice to locate the data structure outside of O'Hare's storage system.

7. Claims 42 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Hare et al. (USPN: 6,484,173) in view of Monsen et al. (PGPUB: 2003/0050962).

Regarding claims 42 and 58, O'Hare does not disclose the filter and the input disposed on the outside of the storage system. However, Monsen discloses a filter and an input disposed outside of a storage system (Monsen – filter; Figure 1, Reference 12; input; signals lines coupling References 20-24 and 12; storage system; Figure 1, Reference 34). It is common knowledge in the art to remove functionality and/or logic from one device to another to simplify the design thereof or to free the device from performing such functions so that the device may perform other functions [efficiency]. This feature would be desirable in the system of O'Hare if one wanted to simplify the design of the storage system or to operate the storage system more efficiently and thus it would have been obvious to one of ordinary skill in the art to modify O'Hare's system to dispose the filter and the input outside of the storage system for the above reasons.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Blumenau – USPN: 6,295,575 – shared storage system and restrictive memory access

Sadana – USPN: 6,311,255 – restrictive memory access

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Hubis – USPN: 6,343,324 – selective memory access to shared resource.

Orita – USPN: 5,163,147 – memory access protection

Horst – USPN: 6,496,940 – memory protection

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 703-308-9592. The examiner can normally be reached on M-F (9:00 - 6:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 703-308-1756. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.


KIMBERLY McLEAN-MAYO
PRIMARY EXAMINER

Kimberly N. McLean-Mayo
Examiner
Art Unit 2187

KNM

September 24, 2003